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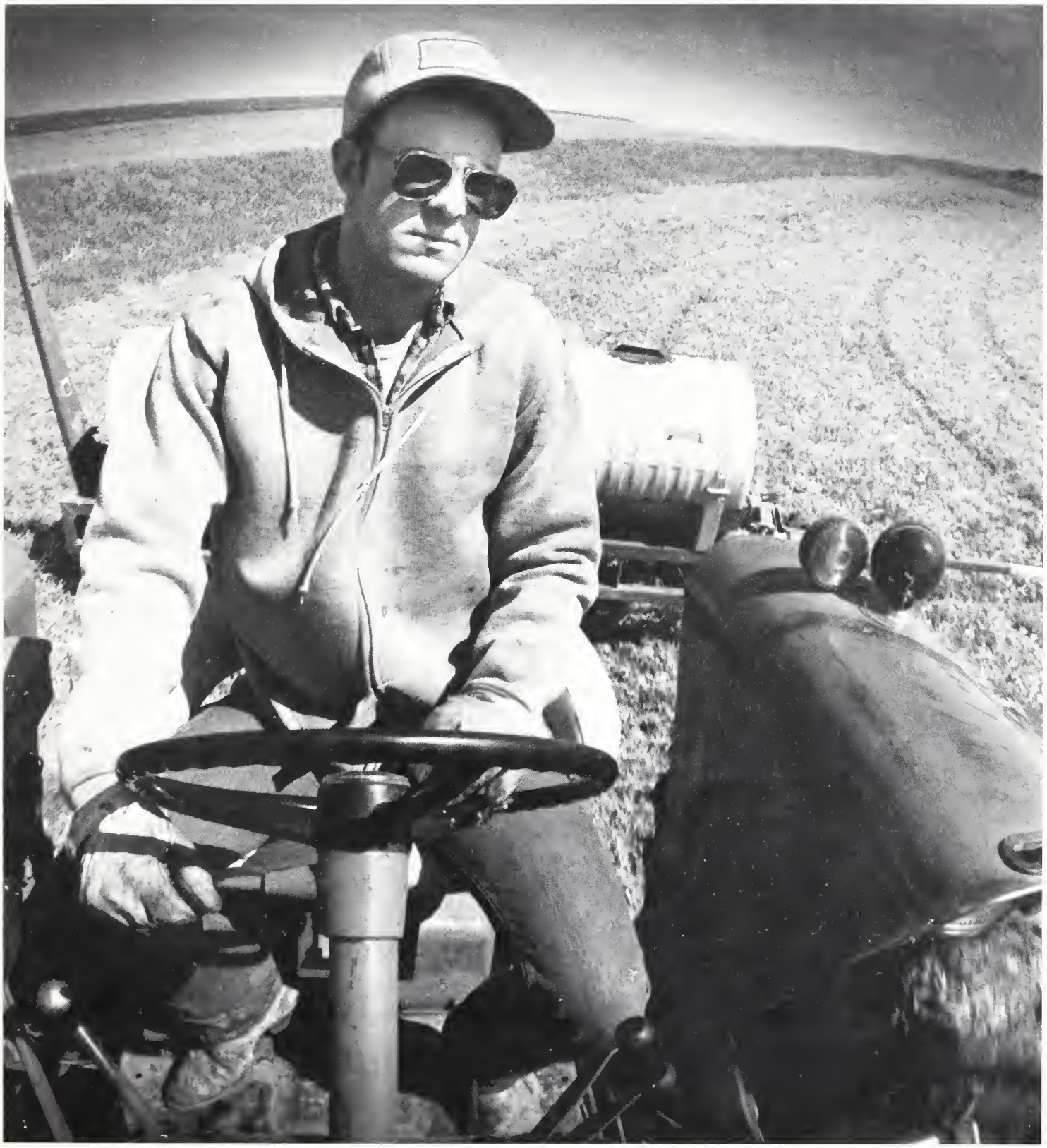

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Comments:
From the SCS Chief

Program Evaluations Help SCS Meet the Future

We have just completed the most indepth ever evaluation of the Conservation Technical Assistance (CTA) program of the Soil Conservation Service.

We looked at technical and financial assistance provided to land users at the local level in 1983.

The data represent more than 453,000 conservation practices or systems on 84 million acres and represent an investment of $1.2 billion by land users and by local, State, and Federal government.

More than 70 percent of that investment was made by private land users. For every CTA dollar spent at the local level, private land users spent $4.20.

The CTA evaluation showed that in 1983 SCS was responding at the field level to priority conservation objectives. Achievements included reducing soil erosion by 131 million tons and improving the use of 3.2 million acre-feet of water.

Many of the evaluation findings were encouraging. They showed some things we need to work on too. One was that we need to help field level conservationists spend more time providing direct assistance to land users.

We know this will put more conservation on the ground because nearly 80 percent of the practices applied in 1983 resulted from the conservation planning process.

It will mean streamlining field office support and administrative activities, automating these tasks as much as possible.

Collecting and analyzing data for evaluations like the one for the CTA program build a baseline SCS can use to measure program effectiveness in the future.

The CTA evaluation and others are part of the National Conservation Program and the Soil and Water Resources Conservation Act of 1977. The evaluations provide an opportunity for SCS to look at programs and operations objectively and make needed changes and improvements. That's good management.

Used wisely, the information that program evaluations provide will prepare SCS to meet tomorrow's conservation challenges.

Peter Myers

Cover: Steward of the land—Roger Cerven plants corn using the no-till method of farming. Cerven and his father farm 700 acres in Montgomery County, Iowa, on land described as a showcase for conservation. The Cervens have installed nearly 29 miles of grassed backslope terraces with tile outlets, use grass field borders instead of turn rows, and use 100 percent no-till farming. This photograph was part of a display at the National Wildlife Federation's conservation education center in Vienna, Va. See article on pages 6 and 7. (Photo by Tim McCabe, photographer, SCS, Washington, DC.)

John R. Block
Secretary of Agriculture

Peter C. Myers, Chief
Soil Conservation Service

All programs of the U.S. Department of Agriculture are available to everyone without regard to race, creed, color, sex, age, or national origin.

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SCS Releases 14 Conservation Plants

The Soil Conservation Service and cooperating agencies released 14 new conservation plants in 1984:

• **'Sea Isle' Japanese Sedge** (*Carex kobomugi* Ohwi)—a low-growing, leafy, slowly spreading perennial. It is long lived, has low fertility requirements, and resists disease, insects, and foot traffic on sand dunes. It is primarily for use in interplanting with or into stands of American beachgrass in areas of heavy foot traffic on coastal dunes. It is adapted from Long Island, N.Y., south through South Carolina.

• **'Duro' California buckwheat** (*Eriogonum fasciculatum* Benth)—a native evergreen shrub. It is excellent for use on critically eroded areas and for environmental enhancement on sandy to clay loam and moderately to well-drained soils. It occurs abundantly in southern California but is also adapted to other parts of the State up to 2,700 feet where mean annual precipitation ranges from 7 to 20 inches.

• **'Lancer' perennial pea** (*Lathyrus latifolius*)—a perennial legume. It is for inclusion in roadside seeding mixtures and in other critical area plantings where objectives include beautification. It is compatible with other legumes and fixes nitrogen, which increases ground cover density in erosion control plantings. It has secondary value as wildlife food and cover, particularly for small mammals, pheasant, and quail. It is adapted to the Lakes States and most of the Northeast and is likely to be adapted south to Virginia, Missouri, and Kansas.

• **'Immigrant' Forage Kochia** (*Kochia prostrata*)—a perennial, semi-evergreen subshrub. It is an improved strain selected for its ability to compete with cheatgrass and halogeton on depleted rangelands. Its important characteristics are: ability to establish and persist on disturbed harsh soils, fairly high salt and drought tolerance, tolerance to temperature extremes (–25° to 104° F.), low oxalate levels, ability to spread rapidly from seed, high seed production, moderate shade tolerance, good palatability for livestock and big game, food and cover for upland game birds, fair fire tolerance, compatibility with other perennials, competitiveness toward annuals, and the ability to increase fall and winter forage quality of perennial grass stands. It is adapted to greasewood-shadscale, sagebrush-grass, and pinyon-juniper rangelands in the inland West.

• **'Bozoisky-select' Russian wildrye** (*Psathyrostachys juncea*)—a vigorous, long-lived, perennial bunchgrass. It was obtained from the USSR and has better stand establishment than other Russian wildryes. It is used for range improvement in the sagebrush ecosystem with 8 to 14 inches of annual precipitation.

• **Eastern gamagrass—GSF–I and GSF–II** (*Tripsacum dactyloides*)—a germ plasm release for use as breeder stock to increase seed production capability. Its probable range of adaptation is the eastern half of the Nation.

• **'San Luis' slender wheatgrass** (*Agropyron trachycaulum*)—an erect tufted perennial bunchgrass native to North America. Because of its rapid establishment, good emergence success, and spreading ability by seed, it is an excellent grass species for erosion control. It is considered good quality hay and pasture. With other wheatgrasses, it is among the preferred food of bighorn sheep and elk at higher elevations. It is recommended for soil stabilization on slopes and disturbed sites above 6,000 feet, receiving 14 inches or more average annual precipitation. It is recommended for ski slopes, transmission and pipeline corridors, mined land reclamation, and roadside seedings. It may also be used at lower elevation where rainfall is adequate.

• **'Tropic Lalo' paspalum** (*Paspalum hieronymii* Hack)—a perennial, rapid-spreading, low-growing, stoloniferous grass native to Brazil. It was developed primarily as a ground cover for erosion control in orchards, waterways, roadsides, and other erosion-prone areas. It is a low-maintenance plant that has dense growth which crowds out weeds and requires infrequent mowing. When mowed, it becomes matlike. Its stolons are tough and will tolerate heavy use from equipment and foot traffic. It is adapted to elevations ranging from sea level to more than 3,000 feet in Hawaii. It will grow in areas with annual rainfall in excess of 40 inches to more than 100 inches. It is adapted to a wide variety of soils ranging from coarse to fine textured and at pH levels of acid to moderately alkaline. It is somewhat tolerant to low-fertility soils but responds favorably to nitrogen, either from applied fertilizer or associated legumes.

• **'Hycrest' crested wheatgrass** (*Agropyron cristatum*)—a long-lived, perennial, cool season bunchgrass. It is a hybrid between 'Fairway' and standard crested wheatgrass. It is drought resistant and is

'Tropic Lalo' paspalum, one of the 14 conservation plants SCS released in 1984, is a durable, low-maintenance ground cover. One of its primary uses is controlling soil erosion on field access roads.

easily established under harsh range conditions. It is good for early season grazing and is adapted to the sagebrush ecosystem with 8 to 15 inches of annual precipitation.

- **'Scarlet' Mongolian cherry** (*Prunus fruticosa* Pallas)—a small, strongly suckering shrub. It is recommended for use in multi-row farmstead and field windbreaks, wildlife habitat, and other plantings associated with revegetation of transportation and transmission corridors. It performs well on deep, fine to moderately fine textured, well-drained soils, and in climatic conditions typical of the northern Great Plains—North Dakota, South Dakota, and Minnesota.
- **'Sakakawea' silver buffaloberry** (*Shepherdia argentia*)—a densely branched, suckering shrub that grows to 16 feet. It is recommended for use in farmstead and multi-row field windbreaks, wildlife habitat, and natural area plantings associated with revegetation of surface mined lands, transportation and transmission corridors, flood plains, and other drastically disturbed areas. It is primarily adapted for planting in the Northern Great Plains States: North Dakota, South Dakota, Montana, Wyoming, Nebraska, and Minnesota.
- **'Midas' rough oxeye** (*Heliopsis helianthoides*)—a perennial forb. It is for use in mixtures for critical area plantings, rangeland vegetation, and roadside and rest area plantings. It is adapted to the eastern half of Nebraska, Kansas, and Oklahoma; to most of Iowa and Missouri; and to western Arkansas.
- **'Niner' sideoats grama** (*Bouteloua curtipendula*)—a tall, perennial bunchgrass. It is recommended for use in seed mixtures with other species where sideoats grama is adapted whether for range reseeding, roadside plantings, or mined-land reclamation. It performs best on medium to heavy textured soils. It is adapted to Arizona, New Mexico, Colorado, Texas, Utah, and Oklahoma.
- **'Lassen' antelope bitterbrush** (*Prushia tridentata*)—an upright, leafy shrub. Its principal use is forage production in big game ranges, depleted rangeland restoration, and critical area stabilization. It is adapted to semi-arid areas of California, Oregon, Washington, Utah, Nevada, and Idaho at elevations of 3,000 to 6,000 feet.

Fifty Years of Conservation Plants

The Soil Conservation Service is looking for a few good plants. The 14 varieties released by SCS last year join an elite group of 250 hardy conservation plants that are capable of withstanding some of the most extreme conditions on the planet.

SCS operates 24 plant materials centers (PMC's) to find, develop, and release varieties of plants that are capable of growing and holding the soil on areas where few others can. These varieties are now planted on approximately 1.5 million acres each year.

The work at the PMC's is supported by and coordinated with Federal and State research agencies and experiment stations. State experiment stations work on food and fiber crops of major economic importance; PMC's work on plants to solve conservation problems.

When SCS began, in 1935, it emphasized demonstration projects and work programs of the Civilian Conservation Corps. These activities, however, required more and better plants than were commercially available, and many projects were in relatively remote areas where tree and shrub species could not be shipped because of inadequate transportation and storage facilities.

SCS inherited at the outset 14 nurseries and 10 experiment stations. These facilities were expanded and new ones were established until, by June 1936, there were 48 nurseries and 23 experiment stations to produce the quantities of seeds and plants needed for applying conservation practices. In 1940, one nursery produced and distributed more than 15 million seedlings.

The number of nurseries and experiment stations decreased in the 1940's as SCS began to shift its focus from demonstration projects to the new soil conservation districts rapidly being formed across the Nation. Only 10 nurseries remained in 1954 when their role was changed from large-scale production to systematic evaluation and selection of superior strains of plants for specific conservation problems. SCS encouraged commercial growers to produce the seeds and plants of these superior varieties. The nurseries were designated "plant materials centers" in 1956.

Dr. Franklin J. Crider developed the plant evaluation and selection process that is still used today. He directed all nursery staffs to "find the plant that can do an effective conservation job wherever the problem may be." The acquisition of new plants was accelerated by the many personal contacts Dr. Crider made in the United States and abroad.

The evaluation and selection process typically takes 10 to 15 years. First, the specific conservation problem is documented. Seeds and plants of species likely to solve the problem are then assembled from local collections, plant breeders, and foreign introduction stations. These plants are grown in rows or blocks at a PMC and compared to plant varieties in commercial use. After data are collected on specific characteristics—for 1 to 5 years—the most promising plants are selected and grown in quantities for evaluation under controlled conditions to study soil and climatic adaptation. Again the commercial varieties are grown for comparison.

The few best performing strains undergo final testing on sites that are similar to those for which the new varieties are intended. These field plantings are carried out by conservation district cooperators and State and Federal agencies with access to farms, ranches, or other appropriate sites.

A typical plant materials field evaluation, Polk County, Oreg.

Standard commercial varieties are included in field plantings again to verify the superior performance of the selections.

Cultural and management trials are usually needed to determine stand establishment specifications and techniques for seed or plant production, or to verify yields in the case of a forage species. Even the hardiest variety of conservation plant must be practical to reproduce, market, and manage.

When a plant has passed all the tests and proven itself superior to available standards for a conservation problem in a geographic area, it is named and released as a new variety to commercial nurseries and seed growers. SCS then provides foundation plant material of the new variety to conservation districts and State crop improvement groups who encourage commercial reproduction of the variety for sale to the public. Finally, the new variety is promoted in SCS field offices and incorporated into local conservation efforts.

H. Wayne Everett,
plant materials specialist, South National Technical Center, SCS, Fort Worth, Tex.

Missouri Plant Center One of the First

One of the original 10 nurseries of the Bureau of Plant Industry was built in 1934 in Elsberry, Mo., at the edge of the Mississippi River flood plain. This facility, which is about 70 miles north of St. Louis, now serves the Midwestern and Great Plains States as a plant materials center (PMC) of the Soil Conservation Service.

The Elsberry center was originally used to introduce, test, and evaluate foreign and domestic plants for esthetic and economic purposes. When it was transferred to SCS in 1935, it shifted to producing quantities of seedlings for conservation projects.

"Black locust became the 'Queen of the Battle,' " remembers Hugh Steavenson, who was manager of the center from 1936 to 1944. "It could be produced easily and rapidly, would thrive on the worst eroded sites, was easy to plant, and had a relatively high economic value for fence post production." Under Steavenson's management the center produced millions of trees and shrubs and set the foundation for many of today's uses of warm-season perennial grasses.

"The Elsberry center has had a tremendous effect on soil and water conservation history," said Richard Brown, a plant materials specialist who coordinates activities between the center and SCS field offices. "It sits in the middle of the Corn Belt region and near the States that have our country's most severe erosion problems."

The PMC now develops superior plant varieties to solve specific conservation problems in Illinois, Iowa, and Missouri. "Even though today's techniques are slightly different," Brown said, "we still have the same types of problems. Most erosion control efforts involve plants."

Work underway at Elsberry includes: searching for a cover crop that will reduce erosion in no-till farming and also minimize the need for herbicide; developing legumes for interseeding in pastures to increase livestock production and provide wildlife food and cover; finding plants for revegetating shorelines to improve water quality and increase the life of ponds, structures, and dams; and evaluating poplar tree species for wood products and for use in windbreaks.

Plants that have been released from the center include 'Emerald' crownvetch, 'Cave-in-Rock' switchgrass, 'Cling-Red' honeysuckle, 'Flame' Amur maple, 'Bobwhite' soybean, 'Ioreed' reed canarygrass, 'Elsberry' autumn-olive, 'Rumsey' indiangrass, and 'Rountree' big bluestem.

Julie Tockman,
public affairs specialist, SCS, Columbia, Mo.

Birdsfoot trefoil, a conservation plant used for erosion control and livestock forage, is one of the millions of plants evaluated at the SCS Elsberry Plant Materials Center, Elsberry, Mo., over the past 51 years.

Conservation Photographs on Display

In observance of National Wildlife Week in March, the National Wildlife Federation displayed a collection of Soil Conservation Service photographs at its conservation education center in Vienna, Va. The collection consisted of 23 color photographs by SCS Photographer Tim McCabe.

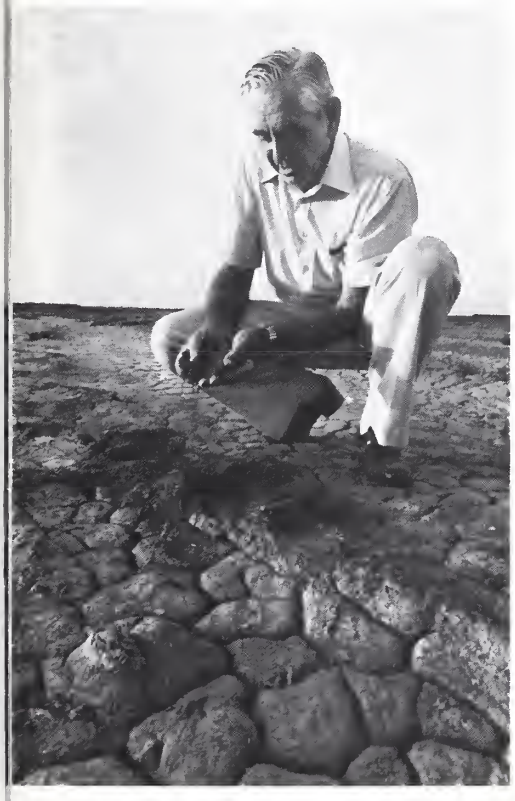
The show, "Soil . . . A Most Vital Resource," offered a brief look at soil, its beauty and its problems, and the dedicated stewards who work to protect it for future generations. Five of the photographs are reproduced here.

Several of the photographs will be placed on permanent display in the Dirkson Senate Office Building's Budget Committee Hearing Room, Washington, DC.

On this Palouse hillside, topsoil loss is evident where spring wheat has not yet begun to grow.

Effective conservation—stripcropping of hay and corn on a Carroll County, Md., hillside.

Moonrise over Colorado's National Monument.
Dramatic evidence of the action of wind and water.



SCS District Conservationist Wayne Flanagan examines
salt-encrusted soil in California's Imperial Valley.

No-till planting—a new crop in the residue of
the harvested crop in Carroll County, Md.

Conservation—An Olympic Event in Virginia

Soil Conservation Service and conservation district employees in Virginia are playing games. Their goals are to build fellowship and demonstrate their skill in basic fieldwork. The games are called Conservation Olympics.

SCS Area Conservationist Roger Montague in Culpeper, Va., organized the first Conservation Olympics in the State for conservationists and technicians in Area 2 in Summer 1983. The second olympics in the area was held in Spring 1984. Area 2 includes 13 field offices serving 18 counties in north-central Virginia.

Montague said the idea for Conservation Olympics came from the need to assess employees' training needs. "This is an excellent way for people to see for themselves the skills they are strong in and the skills they may need to improve on," he said.

For the 1984 competition, participants rotated in teams among five events, but each person worked individually. They judged a soil profile, determined soil loss, identified plants, used a hand level, and did a surveying exercise.

Participants answered questions on handouts at each event and returned them before moving on. The time limit was generally 30 minutes per event and each event was worth 100 points. Points were deducted for going over the time limit.

In the soil judging event, participants examined a soil profile to determine which layers of soil material would be best for various uses such as constructing an embankment for a pond. They determined the depth of the seasonal high water table, the problems that could occur in constructing grassed waterways, and the best type of tillage to use in growing corn for grain or silage.

In the soil loss event, participants determined the percentage of ground cover on a marked field and determined the percentage and length of slope. They plugged this information and other given information into the Universal Soil Loss Equation to determine the average annual soil loss. Participants further determined what the soil loss would be if the field were terraced at 100-foot spacings and whether or not they would recommend the landowner continue the present cropping system.

In the plant identification event, participants named 25 plants growing in a field and marked with numbered signs. "In our work with landowners we need to be able to easily identify crop and pasture plants as well as noxious weeds," said Harry Jones, an olympics participant and SCS district conservationist in Fauquier County, Va.

In another event, participants used a hand level to estimate the difference in elevation between two points to set the water line for constructing a pond. They also tested their skill in pacing the distance between points, classifying a wetland area, and determining if an area was suitable for spring development to supply water for livestock.

One event tested participants' ability to survey, or run a level circuit for an area, and properly record their findings. Field personnel use these skills in gathering data and designing and laying out conservation practices such as ponds, spring developments, animal waste facilities, and terraces and diversions.

The olympics took about 5 hours and included a break for lunch. SCS State

SCS Soil Conservation Technician Nancy Utz from the Culpeper, Va., field office answers questions in the soil loss event at the Conservation Olympics last spring.

Conservationist Manly Wilder announced the top three scores shortly after the teams finished their last event.

"This was a good learning experience," said John Jeffries, an SCS soil conservation technician in Culpeper. "It showed me what I need to learn," said Jeanne Nye, a new soil conservationist for the Hanover-Caroline Soil and Water Conservation District.

Throughout 1984 the four other SCS areas in Virginia conducted their own Conservation Olympics, and in November a statewide contest was held in Charlottesville. Five top scorers from each of the State's five areas participated.

"These contests have been a big help at the area and State level in setting up training that meets the needs of our field staff," said Willis Miller, SCS assistant State conservationist in Richmond.

"Besides helping to identify individual training needs, Conservation Olympics has provided an opportunity for field employees to get together informally, become better acquainted, and exchange ideas about their work," said James Blodgett, SCS area engineer in Culpeper.

"This year, we are going to organize the contest in Area 2 a little differently to foster more exchange of ideas," said Blodgett. "We're going to have teams work together on developing a total conservation plan for the same farm. The plans will be critiqued afterwards. This way people in different disciplines such as forestry, soils, or engineering can learn from each other."

Nancy M. Garlitz,
associate editor, *Soil and Water Conservation News,*
SCS, Washington, DC

Automated Skills Inventory System Helps Select Job Candidates

The U.S. Department of Agriculture's Office of International Cooperation and Development (OICD) has developed an automated skills inventory system (ASIST) to help locate possible candidates for its technical agricultural assistance and international agricultural training assignments.

Applicants' specialized skills and experience are entered into the system under various categories so that the agency may recall the information when trying to fill a vacancy. This helps the agency speed up the process of selecting a candidate, since, due to time constraints, the agency is frequently unable to publish vacancy announcements for individual responses.

OICD coordinates the Department's efforts in international development and technical cooperation in food and agriculture, including international cooperative research. Projects administered by the agency are conducted in the United States and overseas and vary in duration from several days to 1 year.

The kinds of skills and experience frequently required by OICD include: agricultural extension, soil science, rural development, food technology, plant breeding, farm management, agricultural management, agricultural policy, technical assistance, and training.

For additional information, application forms, and complete listings of required skills and anticipated projects, contact the ASIST coordinator, USDA, OICD, Room 4119 Auditors Building, 201 14th Street SW, Washington, DC 20250.

Earth's Life Support Systems Threatened

The cumulative actions of a world population approaching 5 billion are now capable of causing continental and even global changes in natural systems, according to a new study by Worldwatch Institute, a Washington, DC-based research group.

The study reported that as human pressures on the economy's natural support systems build, the more severely stressed ones are beginning to break down.

"Nowhere is this more tragically evident than in Africa, where famine is spreading across the continent," said Lester R. Brown, president of Worldwatch and director of the study, *State of the World 1985.*

"As recently as 1970," Brown said, "Africa was essentially self-sufficient in food. In 1984, however, some 140 million Africans out of a total of 531 million were fed with grain from abroad."

Brown called drought the "triggering event" for Africa's famine, not the basic cause. Noting a gradual decline in per capita food grain production in Africa since 1967, Brown said the food crisis is the result of the fastest population growth of any continent in history, widespread soil erosion, and the neglect of agriculture by African governments.

"Accelerating soil erosion is dimming the food prospect of virtually every African country from the Mediterranean to the Cape of Good Hope," Brown said. Citing a 1978 report on Ethiopia showing that it was losing a billion tons of topsoil annually, he said "the famine now gripping that ancient country was foreshadowed by years of severe soil erosion."

State of the World 1985 is the second annual survey by Worldwatch on how changes in the Earth's natural systems and resources affect the economy. A team of six Worldwatch researchers, headed by Brown, assessed progress in managing resources such as water, soils, forests, fisheries, and energy. The surveys are supported in part by the Rockefeller Brothers Fund.

The research team found that stresses on natural systems caused by population growth may be indirectly reducing rainfall by decreasing the land's vegetative cover.

"As vegetation is reduced by deforestation or overgrazing, the share of rainfall running off directly to the ocean increases," said Brown. "Less rainfall evaporates into the atmosphere to recharge rain clouds that move inland."

As the demand for water increases, aquifer depletion is taking its place beside oil depletion and soil erosion as a constraint on growth in world food production, Brown said. Key food producing areas that now face water constraints include the U.S. High Plains, the Soviet Central Asian Republics, and the North China Plain.

The Worldwatch report authors described the effects of acid rain and air pollution on the world's forests and the extinction of growing numbers of plant and animal species.

"Our security and future well-being may be threatened less by the conflicts among nations than they are by the deteriorating relationship between ourselves, soon to be five billion, and the natural systems and

resources that sustain us," said Brown. He called for a thorough overhauling of agricultural, energy, and population policies, aimed at managing resources on a sustainable basis.

Copies of the study are available for $8.95 from the Worldwatch Institute, 1776 Massachusetts Avenue NW, Washington, DC 20036.

NACD Holds 39th Convention

Secretary of Agriculture John R. Block spoke from Washington, DC, via video communications satellite, to nearly 2,000 conservation district officials at the 39th annual meeting of the National Association of Conservation Districts (NACD) in Honolulu, Hawaii, in February. The Secretary told the group that although the U.S. Department of Agriculture (USDA) budget is austere, the same is true of the other departments in the Federal Government.

Secretary Block outlined USDA priorities for the next few years and cited the need for ensuring that "as we change from farm programs that have been heavily dominated by the Government to farm programs that are market growth in character, we do this in a way that is compassionate," ensuring adequate funding for Farmers Home Administration programs that help "farmers who don't have the money to plant their crops this year, who need loans."

Concerning soil and water conservation programs, Secretary Block said, "technical assistance is going to be one of the places where we are going to keep money in the budget. Also for soil mapping. I do believe that soil and water conservation is going to continue to be an important and very significant revolution across this country and is going to be carried out by farmers, and by the public in general."

Keynoting the opening session, NACD President Milton E. "Bud" Mekelburg of Yuma, Colo., listed several NACD achievements in 1984 that brought broader support to the conservation movement. But, Mekelburg warned, "conservation has been swimming upstream against strong economic currents" and though soil conservation efforts are continuing "those efforts are not sufficient to stop the pressures on the land coming from our social and economic systems."

Mekelburg asked the delegates to continue to build a stronger partnership between local, State, and Federal conservation efforts; to build cooperative efforts with multiple agencies and organizations, both public and private; and to keep working for adequate funding for strong conservation programs at all levels of Government.

A highlight of the convention was the release of the book, *For Love of the Land: A History of the National Association of Conservation Districts.* This 360-page book, authored by conservationist R. Neil Sampson, tells the story of people and issues in the American soil conservation movement. It traces the major achievements, issues, debates, and turning points of the soil conservation movement in this country. Copies are available for $14.95 from the NACD Service Department, P.O. Box 855, League City, Tex. 77573.

Speaking at the convention on Tuesday, Representative E. "Kika" de la Garza, chairman of the House Committee on Agriculture, observed that the perception of the importance of agriculture, and conservation, in this country is growing, but we still have many people to convince. "The perception of mainstreet USA is negative toward agriculture, toward producers, toward agribusiness—for what reason I don't know," de la Garza said. "We are the best fed people in the world, for the lowest amount of disposable income . . . and we are spoiled.

"We need to put it all together; we need to get the word out!" Calling soil conservation a national asset, de la Garza urged convention delegates to "talk about those assets like conservation, something you can point to with pride, that you [can] show on the land. That is our asset to our children."

Senator John Melcher of Montana received NACD's Distinguished Service Award. Melcher has been a strong supporter of the sodbuster legislation and a strong advocate of conservation districts.

George Bagley, former NACD president received the Special Service Award; Al Gustin, farm director of the Meyer Broadcasting Company in Bismarck, N. Dak., received the Communications Award; the Maui Land and Pineapple Company, Inc., of Maui, Hawaii, received the Business Conservation Leadership Award; and Robert E. Williams of Delaware received the Professional Service Award.

Other awards were given for the best district newsletters, the outstanding conservation educator, and the best conservation education program carried out by a conservation district.

NACD is a nongovernmental association representing about 3,000 conservation districts throughout the United States, Puerto Rico, and the Virgin Islands.

NACD resolutions for future action included supporting a Conservation Reserve in the 1985 Farm Bill; legislation to allow land under conservation treatment to count as part of the cropland base for commodity programs; a search for ways conservation districts can work with flood managers in developing programs in flood plain areas; recognition of water quality, animal waste management, and urban conservation issues in Soil Conservation Service funding formulas; and establishment of a clearinghouse for computer software useful to conservation districts.

The Conservation Tillage Information Center released its 1984 conservation tillage survey that revealed that 10 million more acres of land were conservation tilled in 1984 than in 1983.

During the convention, each NACD committee participated in discussion forums where speakers presented new technical information and new ideas on many aspects of soil and water conservation.

Duane A. Bosworth,
head, Education and Publications Staff, Public Information, SCS, Washington, DC

Stream Control Provides Wildlife Bonus

In addition to reducing erosion, some small ponds created by experimental streambed control structures are providing fish habitat. The ponds are actually the "stilling basins" of low-drop grade-control structures being tested at 20 locations in the South.

The structures are designed to reduce stream downcutting on alluvial soils. For fish, however, they are providing rock-bottomed ponds 4 to 6 feet deep in streams that may otherwise be dry part of the year.

"We have observed people fishing in the basins, and they tell us the fishing is better than ever," said Dr. W. Campbell Little, an engineer who helped design the structure at the Sedimentation Laboratory of the USDA Agricultural Research Service, Oxford, Miss. "We have not done any scientific studies on the wildlife aspect. It is just what we have been told by other people, including some fish and wildlife professionals."

The design features a baffle plate or pier implanted in a stilling basin to dissipate the energy of the streamflow during periods of high water. Basically, it is an effort to limit downcutting and control the streambed on alluvial soils the way bedrock and rock outcrops do in areas where the soil is not so deep. If downcutting is not limited, the streambanks become unstable and valuable cropland topples into the stream and is washed away.

Versions of the structure with minor modifications have been installed in Mississippi, Arkansas, and South Carolina. Most have been built by the Soil Conservation Service in the Yazoo River basin of northwestern Mississippi. The U.S. Army Corps of Engineers has also built several.

Peter Forsythe, who has worked on the structures as special studies coordinator for SCS in Mississippi, has also observed fish in the basins. He said the riprap on the bottom and sides of the basins provides habitat diversity for fish and also helps aerate the water flowing over it.

Geographic Information for Military Bases

A new geographic information system (GIS) has been developed for land managers on U.S. military installations. A GIS is a set of procedures and computer programs for acquiring, storing, retrieving, analyzing, and displaying spatially referenced data.

The new GIS—one of the few in the public domain—is called the Geographic Resources Analysis Support System (GRASS). Like most GIS's, it contains soil data from the Soil Conservation Service. The intended users include training planners, wildlife managers, foresters, and range conservationists.

More information can be obtained from William Goran, U.S. Army Construction Engineering Research Laboratory, P.O. Box 4005, Champaign, Ill. 61820.

Improving Habitat for Big Game

Burning off the blackbrush in Hell's Hollow is one of several steps taken by the Hualapai Indians to improve wildlife habitat on their reservation in northwest Arizona. The burned area now provides forage for desert bighorn sheep.

The Hualapai Reservation covers approximately 1 million acres in and along the Grand Canyon. With assistance from the Bureau of Indian Affairs (BIA) of the U.S. Department of the Interior and the Big Sandy Natural Resource Conservation District, the Hualapai Tribe is planning and applying practices to improve the habitat for desert bighorn sheep and elk in harmony with logging, grazing, recreation, and other land uses on the reservation.

Desert bighorn sheep live among the precipitous canyons and cliffs of the reservation. They are one of the most prized big game animals in the United States, and a special permit is required for hunting them. The sale of these hunting permits is an important source of revenue for the tribe.

More forage and sources of water are essential if the bighorns are to flourish and expand their range. Tribal leaders feel these elements must be improved to maintain current populations.

The bighorn diet is 40 to 60 percent grass. To increase the grass available, the relatively unpalatable blackbrush was burned off 1,000 acres in an area known as Hell's Hollow, which is near a natural spring on a canyon ledge. The burned area was then seeded at a rate of 12 pounds per acre to a mixture of sideoats grama, weeping lovegrass, blue grama, intermediate wheatgrass, and fourwing saltbush.

The prescribed fire was planned by specialists from the Soil Conservation Service and carried out in July 1983 by BIA fire crews. Helped by timely rainfall, the seeds germinated and by October 1984 the plants were well established and suitable for grazing.

Two springs have been improved to encourage bighorns to expand their territory. A trough was fitted to the first spring to catch water that was running into the sand. A trough that was full of sediment was cleaned at the second spring.

Resident elk herds spread out over the forested areas during spring, summer, and fall. In winter, they are joined by elk coming from off the reservation to escape snow. Elk tagged 100 miles away have been harvested on the reservation.

Practices to improve the elk habitat have included maintaining open parks and meadows, avoiding logging in elk calving areas during May and June, reseeding wildfire-burned areas to grass and forb mixtures, and leaving browse in wintering areas. Water supplies are considered adequate for elk.

The tribe also plans fencing to control livestock, installing water catchments, and improving more springs. Plans for improving the habitat for mule deer, pronghorn, and wild turkey are scheduled for future development.

David W. Seery,
area biologist, SCS, Flagstaff, Ariz.

New Publications

Going Wild With Soil and Water Conservation

by the Soil Conservation Service

A farm or ranch is a living community of plants, domestic animals, and wildlife, all of which are supported by the soil and water resources on the land. This 23-page booklet shows how, with proper management and a conservation system, land users can protect the soil and water and the habitat on which wildlife depend for survival.

This full-color publication is enhanced by photographs of wildlife in their natural habitat and some of the practices that benefit them.

For a copy of this booklet (Program Aid Number 1363) or for more information on how to improve wildlife habitat while conserving soil and water resources, contact the local office of the Soil Conservation Service.

Salinity Tolerance in Plants

Edited by Richard C. Staples and Gary H. Toenniessen

Based on an international conference on salinity tolerance, this book updates the knowledge concerning the physiological and biochemical mechanisms used by plants to accommodate high saline conditions. It reviews strategies for developing salt tolerant varieties, including plant breeding, cell culture, and molecular techniques.

For years scientists have been able to manipulate the genetic composition of plants to produce improved crop varieties that contribute significantly to increased food production. However, when it is not feasible to modify the environment to suit the plant, scientists are being challenged to modify the plant to suit adverse environments.

This 443-page book is divided into three parts. The first deals mainly with cytology and physiology; the second focuses on the successes and difficulties plant breeders and cell biologists confront in selecting and using salt-tolerant plants in breeding programs; and the third discusses the cultivation of plants in controlled environment agriculture as an alternative strategy for dealing with saline conditions, the economics of plant improvement strategies, and the role of salt-tolerant plants in the international food situation.

Salinity Tolerance in Plants is available for $49.95 from John Wiley & Sons, Inc., 605 Third Avenue, New York, N.Y. 10158.

National Leaders of American Conservation

Edited by Richard H. Stroud

Compiled by the Natural Resources Council of America, this publication provides brief biographical sketches of individuals, past and present, who have made significant and lasting contributions to the conservation of our natural resources. The men and women outlined are among the most outstanding conservationists in America.

An appendix lists the 51 national and regional conservation/environmental organizations that make up the Natural Resources Council of America.

Copies of this 540-page paperback are available for $24.95 (plus $1.50 postage and handling) from Smithsonian Institution Press, P.O. Box 1579, Washington, DC 20013. For orders placed before July 31, 1985, the cost is $21.50 per book.

Field Guide to Soils and the Environment: Applications of Soil Surveys

by Gerald W. Olson

As an accompaniment to the textbook *Soils and the Environment*, this guide is intended for use in teaching and learning about the applications of soil surveys. It is divided into three parts: the first part provides an introduction to the language of soil survey interpretations; part two deals with the applications of soil surveys in systems of wide usage; and part three describes principles governing the applications of soil survey interpretations in the future. The format is flexible so that all or part of the material can be used in a full course or short courses.

Field Guide to Soils and the Environment is available for $49, hardback, and $18.95, paperback, from Methuen, Inc., 733 Third Avenue, New York, N.Y. 10017.

The Plant Information Network (PIN) Data Base: Colorado, Montana, North Dakota, Utah, and Wyoming

by Phillip L. Dittberner and Michael R. Olson

PIN is a computer-based data bank for rapidly storing, organizing, and retrieving information on the native and naturalized vascular plants of several western States. The system currently has information on more than 5,000 plants found in five western States.

Since the computerized data base is no longer available, this report contains all of the plant information previously available in the data base with the exception of data on endemism, rarity, and threatened or endangered status of plants.

The basic information units of the PIN data bank are called "descriptors" and "descriptor states." PIN lists information on over 500 descriptors, under the general headings of taxonomic, geographic, biologic, ecologic, and economic plant attributes. The PIN system was primarily designed for three major uses: environmental impact assessment; vegetation inventory; and reclamation planning.

For information on how to obtain this publication write: Plant Information Network, USDI, Fish and Wildlife Service, Western Energy and Land Use Team, Drake Creekside One, 2625 Redwing Road, Fort Collins, Colo. 80526; or phone (303) 226–9388.

Renewing Resources: A Critique of the Issues

by Larry Morandi, Gordon Meeks, Jr., and Douglas M. Sacarto

Third in a series addressing management and protection of natural resources, this publication examines nontraditional types of approaches and decisionmaking that may be necessary in dealing with complicated and difficult natural resource conflicts.

Its four chapters discuss reallocating water resources, applying market approaches to air and water pollution control, assessing the costs of agricultural soils depletion, and framing a decisionmaking process for forest resource policy.

This 133-page report is available for $20 from the Marketing Department, National Conference of State Legislatures, 1125 17th Street, Suite 1500, Denver, Colo. 80202.

Correction

The article "Research Agenda for Floods" on page 7 of the January 1985 issue of *Soil and Water Conservation News* stated that the publication *A Plan for Research on Floods and Their Mitigation in the United States* was available at no charge. The initial supply of the report, distributed free of charge, has been exhausted and reprinted copies are now available for $20 plus $1 for postage and handling.

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